

RHC Snake / Spin Quenches for the month of: April

Date:	Reference ID	Event #	Alarm #	Ident.	Technical Notes	Quench Induced Type	Beam Induced:	Cryo Induced:	Other Type:	3C	5C	7A	7C	9A	9C
11-Apr	SQ-001	1	9C	bc9-snk7-2.3	Not sure what a Target Scan does to the magnets, but beam changes in yellow and blue dropped prior to T-zero by viewing the XMM in Postmortem. There are no indications of a Power Supply at fault. Ref did not ask the four (4) undulator magnets to change current even though all four did at the same time as viewed in Saphire. Quench Detector 9c-q11 tripped because of a real magnet quench at bc9-snk7-2.3. Then had Beam Loss beam losses prior to T-zero on the BLMT via bc9-snk7-1.4 and yb9-snk7-1.4. Magnet bc9-snk7-1.4 also quenched 0.08 seconds later due to the transfer of warm gas from the bc9-snk7-2.3 quench. In addition, magnet yb9-snk7-1.4 ps also quenched at the same time as bc9-snk7-2.3. The Blue Link followed this quench event due to a Beam Quench at BOP/BK7-7V7 in Section 3 (Quel From Bus 9-7). Note transfer of Warm Gas from the bc9-snk7-2.3 and bc9-snk7-1.4 leads Magnet from the case of the Beam Quench. This is the first beam induced quench for the RHC- FY06 Physics Run. G. Heppner	Beam Induced #001	1								1
	SQ-001		9C	bc9-snk7-1.4		Transfer)									1
	SQ-001		9C	yc99-snk7-1.4		Beam Induced #001	1								1
	SQ-001		5C	bc5-snk3-2.3		Low Current / Not Real									
	SQ-001		7A	bc6-snk3-2.3		Low Current / Not Real									
13-Apr	SQ-002	1	9C	yc13-snk7-2.3	There are no indications of a Power Supply at fault. The Snake trip was caused by the 9c-q11 quench detector due to a real magnet quench at yc13-snk7-2.3. There was medium beam loss at y3-bn7-2-snk. Magnet yc13-snk7-1.4 also quenched due to the transfer of warm gas from the yc13-snk7-2.3 quench. This is the second snake beam induced quench for the RHC- FY06 Physics Run. - G. Heppner (yellow) [quench]	Beam Induced #002	1								
	SQ-002		9C	yc13-snk7-1.4		Transfer)									
15-Apr	SQ-003	1	3C	bc3-snk7-2.3	A power dip had occurred at 07:10 this morning. The 9c-q11 quench detector tripped due to a real magnet quench at yc13-snk7-2.3. There were no indications of Beam Losses in this area at the time of the event. Beam Abort did take place in the Dump Station. Magnet yc13-snk7-1.4 also quenched due to the transfer of warm gas from the yc13-snk7-2.3 quench. This is the first Power Dip induced quench for the RHC- FY06 Physics Run. G. Heppner	Power Dip Induced Quench									
	SQ-003		3C	bc3-snk7-1.4		Transfer)									
20-Apr	SQ-004	1	9C	yc99-snk7-62-0L	The 9c-q11 quench detector tripped because it detected a Gas Cold Lead Quench at yc99-snk7-62-0L. A Cryogenic Flow Rate problem for this device (flow had been too low for over an hour) caused the Gas Cold Lead to heat up and eventually quenched. Note that this device was not replaced. This caused the yc99-snk7-2.3 ps to trip off its operating current causing its magnet to quench. Approximately 2.149 seconds later, the yc99-snk7-1.4 magnet quenched due to perturbation. - G. Heppner (yellow) [quench]	Cryo Lead Flow Induced	1								
	SQ-004		9C	yc99-snk7-2.3											1
	SQ-004		9C	yc99-snk7-1.4											1
23-Apr	SQ-005	1	3C	bc3-snk7-1.4	Looking at the Saphire data, The Current and Voltage both drop at the same time while Iref and wfy remained constant. Therefore, the supply was not told to change its status. Qdipha confirms this Current drop and the measurements are as follows: Operating Current of 100.07 amps, a sudden drop to 97.27 amps occurs in 0.033 seconds. This sudden change in current is what caused the 3C Quench Detector to trip the supply. Timing Resolver in 3C also indicated that the Quench Detector tripped the supply. There is no way to determine if there had been an interruption in AC power for the Achromat. G. Heppner	Other			1	1					
	SQ-005	1	7C	bc7-snk3-1.4	Looking at the Saphire data, The Current and Voltage both drop at the same time while Iref and wfy remained constant. Therefore, the supply was not told to change its status. Qdipha confirms this Current drop and the measurements are as follows: Park Current of 1.15 amps, a sudden drop to 1.21 amps occurs in 0.2856 seconds. After 25 seconds of data, the signal indicated 2.13888 amps. (As offset?) This sudden change in current is what caused the 7C Quench Detector to trip the supply. Timing Resolver in 7C also indicated that the Quench Detector tripped the supply. There is no way to determine if there had been an interruption in AC power for the Achromat. Y37-snk3-2.3 also showed similar Current / Voltage drops while Iref and wfy remained constant at its Park Current of 0.631 amps. This supply did not trip in Saphire or Saphire indicates it recovered back to its in Park Current QPA. Control also indicated that the supply stayed on. (File# 1114277133) G. Heppner	Other			1				1		
27-Apr	SQ-006	1	All	All	Wigmore Archive: Blue and Yellow indicate Reference at Injection, all supplies tripped at that point. Postmortem Files for Power Supplies not available at the time of this report. The facility encountered a major power dip due to a quick passing thunderstorm from dropping both Snake at Injection Current. All eight (8) Snake magnets quenched while at operating current. BIL-snk3-2.3 and yb9-snk3-1.4 did not register on Qdipha nor Saphire. Only bc9-snk7-1.4 ps, yc13-snk7-2.3 ps indicated AC Phase Fault. G Heppner	Thunderstorm			8	4					4
Total Counts:		7					3	1	10	9	0	0	1	0	9

RHIC Snake / Spin Quenches for the month of: May

RHIC Physics fy05 (2004-2005)

Date:	Reference ID	Event s	Alcov e	Ident.	Technical Notes	Quench Induced Type	Induced :	Induced :	Other Type:	3 C	5 C	7A	7C	9A	9C
2-May	SQ-007	1	5C	bi5-rot3-2.3	It would appear that Beam was not an issue with the bi5-rot3-2.3 magnet quenching at operating current. The Cryo Log indicated an earlier problem with 2 mass flow controllers (H5452E @ spin B15HRD & H6388E @ spin Y05HRD [D203]) intermittently flowing above & below set point deviation allowance. Beginning to happen frequently, the flow rate seemed to return to within deviation limit prior to 3-minute window for alarm. [D259]. A possible power supply problem with bi5-rot3-2.3 needs further investigation during the next maintenance day. However for now, quench detector 5c-qd1 tripped due to a real magnet quench at bi5-rot3-2.3. At approximately 2.98 seconds later, bi5-rot3-1.4 magnet quenched due to a flow of warm gas created by the bi5-rot 2.3 magnet. G. Heppner	Other			1	1					
				bi5-rot3-1.4		Perturbation (Heat Transfer)				1					
3-May	SQ-008	1	3C	y13-snk7-R2-GL	The following occurred after several of the Operations File System computers had crashed at 10:10:33 as per the Alarm Log Page. Gas Cooled Lead Y13SNKTR2_GL quenched first, causing the y13-snk7-2.3 magnet to quench at operating current. Magnet y13-snk7-1.4 according to the time line unless the data is insufficient due to the Controls System going down, appears to have quenched at the same time. G. Heppner	Other			1	1					
				y13-snk7-2.3		Other				1					
				y13-snk7-1.4		Other				1					
					The following occurred after several of the Operations File System computers had crashed at 10:10:33 as per the Alarm Log Page. Gas Cooled Lead BO3SNKTR3_GL quenched, causing the bo3-snk7-2.3 magnet to quench at operating current. Magnet bo3-snk7-1.4 then proceeded to quench 2.779 seconds after the bo3-snk7-2.3 magnet quenched due to the flow of warm gas. The time stamps for this event where taken from the Qdplots since all other data was not available due to the related Controls problem (systems down) G. Heppner	Other				1					
			3C	bo3-snk7-R3-GL		Other				1					
				bo3-snk7-2.3		Other				1					
				bo3-snk7-1.4		Perturbation (Heat Transfer)				1					
					The following occurred after several of the Operations File System computers had crashed at 10:10:33 as per the Alarm Log Page. Gas Cooled Lead Y09SNKTR3_GL quenched, causing the y09-snk7-2.3 magnet to quench at operating current. Magnet y09-snk7-1.4 then proceeded to quench 2.115 seconds after y09-snk7-2.3 had quenched due to the flow of warm gas. The time stamps for this event where taken from the Qdplots since all other data was not available due to the related Controls problem (systems down) G. Heppner	Other									1
			9C	y09-snk7-R3-GL		Other									1
				y09-snk7-2.3		Perturbation (Heat Transfer)									1
				y09-snk7-1.4											
26-May	SQ-009 PR-131 and 132	1	ALL	ALL	Physics / MCR Log : 19:50 Summary: A. Marusic reports that this Mornings pair of QL's occurred when all of the quench detector FEC's rebooted at the same time. This also quenched all of the snakes, rotators, and most of the auxiliary power supplies to trip, and all of the DX heaters to fire. Investigation into the cause of the event will continue.	Other			1	4	4	4	4	4	4
Total Counts:		3					0	0	3	10	6	4	4	4	7

RHIC Snake / Spin Quenches for the month of June

Date:	Reference ID	Events	Active	Ident.	Technical Notes	Quench Induced Type	Beam Induced:	Cryo Induced:	Other Type:	3C	5C	7A	7C	9A	9C
10-Jun	SQ-010	1	3C	bo3-snk7-1.4	Operating at 100.03 amps, current drops suddenly to 97.36 amps. This sudden change in current is what caused the 3c-qd1 quench detector to trip. Seen before, it is still undetermined as to why the sudden drop in current. G. Heppner	Other			1	1					
12-Jun	SQ-011	1	3C	yi3-snk7-R2-GL	There was enough data that clearly shows that lead faults on the snakes in sector 3 quenched both blue and yellow snakes. The warm gas form these snake quenches quenched the main bus for both blue and yellow rings. Data also shows that the lead flow was increased for a short time before it went to a low level. This is what I believed happened. The lead current data from the Cryo server went down. The lead flow automatically goes to a high flow default value. The Cryo operators then brought the lead flow to a low value. This was in their Cryo e-log. This is what caused the snakes to have a lead fault. They should not have done this with current in the magnet. Some how the Cryo operators did not know the machine was a top energy and or MCR did not know it either. George Ganetis	Other		1							
				yi3-snk7-2.3		Other				1					
				yi3-snk7-1.4		Perturbation (Heat Transfer)				1					
		1	3C	bo3-snk7-R3-GL		Other		1							
				bo3-snk7-2.3		Other				1					
				bo3-snk7-1.4		Perturbation (Heat Transfer)				1					
25-Jun	SQ-012	1	9C	Bi9-snk7-1.4	Beam had been aborted and all systems where run down in preparation for the summer shutdown of 2005. However, MCR had not ramped down the 9C Alcove Snake Magnets in Blue and Yellow but had initiated a Standby Command at Operating Current causing all four Magnets quench. Alarm Log indicated these magnets had quenched, Qdplots shows that there where real magnet quenches but there was no mention of this event in either the Physics Log or the Cryogenics Log. Guess everyone was excited that the end of the run was finally here. I consulted with George Ganetis and he also confirmed my analysis. Operations Error gets the final point for the Counters for the RHIC Physics Run 05. G. Heppner	Operator Error			1						4
				Bi9-snk7-2.3		Operator Error									
				Yu9-snk7-1.4		Operator Error									
				Yu9-snk7-2.3		Operator Error									
Total Counts:		4					0	2	2	5	0	0	0	0	4